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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,008	01/29/2004	Brian S. Hilton	117411	2016
25944	7590	02/28/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER GOFF II, JOHN L	
			ART UNIT 1733	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE 3 MONTHS		MAIL DATE 02/28/2007	DELIVERY MODE PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/766,008

Applicant(s)

HILTON ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10, 11, 14 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/28/06 has been entered. The previous 35 USC 112 rejections have been overcome. In view of applicant's amendment the previous rejections over Wolcott (U.S. Patent 4,859,378) are withdrawn.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claims 1-6, 10, 11, 14, and 22-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 14, and 22 require "applying thermal energy from an external heat source". It is unclear where in the specification it is described that the thermal energy is applied from an external heat source.

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4. Claims 1-6, 10, 11, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 1 and 14 have been amended to remove “a groove” and insert - - at least one three-dimensional structure - -. However, the last line of claims 1 and 14 requires partially filing “the at least a groove”. There is insufficient antecedent basis for this limitation in the claim. Furthermore, it appears from the amendments in claims 1 and 14 and applicants arguments at page 6, under II that “the at least a groove” should require “the at least one three-dimensional structure”, and this is the interpretation given by the examiner.

Claim Rejections - 35 USC § 102

6. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Enders (U.S. Patent 5,538,680).

Enders discloses a method of joining two dissimilar materials for precision alignment using a heat staking control feature comprising placing a first thermoplastic object (12 of Figure 3) adjacent to a second metal object (40 of Figure 3), the first object including at least one heat stake (32 of Figure 3) and the second object including a surface (considered the upper surface of 40 of Figure 3), at least one aperture (56 of Figure 4), and at least one three-dimensional structure (54 of Figure 3) disposed in the vicinity of the at least one aperture, the three-dimensional structure having a wall that is substantially orthogonal to the surface, applying pressure to bring the first object and the second object into proximity and to cause the at least one heat stake to be inserted into the at least one aperture, and applying thermal energy from an

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external heat source to the at least one heat stake so that the at least one heat stake deforms to at least partially fill the at least one aperture and the at least one three-dimensional structure (Figures 3-5 and Column 5, lines 15-16 and 47-48 and Column 6, lines 12-13 and 32-35 and Column 7, lines 14-16 and Column 8, lines 35-42).

Regarding the limitation “applying thermal energy from an external heat source to the at least one heat stake”, it is noted Enders applies thermal energy by known methods including induction heating, conduction heating, etc. which are considered external sources of heat such that the limitation is met (Column 8, lines 35-42).

Claim Rejections - 35 USC § 103

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietl et al. (U.S. Patent 5,519,425) in view of Enders, Goh et al. (U.S. Patent Application Publication 2005/0006548), and Carpenter et al. (U.S. Patent 5,794,878).

Dietl et al. disclose a method for joining a fluid container and a fluid ejector to form an ink cartridge comprising arranging a fluid container, i.e. an ink manifold, (12 of Figure 2)

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including at least one heat stake, e.g. two heat stakes, (40 of Figure 2), a fluid ejector, i.e. a die module, (14 of Figure 2) and a substrate, i.e. a heat sink (24 of Figure 2) in order, the substrate including a first surface and at least one aperture, e.g. two apertures, having an opening in the first surface, applying pressure to the arranged fluid container, fluid ejector and substrate to bring the arranged fluid container, fluid ejector and substrate into respective contact and to cause the at least one heat stake to be inserted into the at least one aperture, and applying thermal energy to the at least one heat stake so that the at least one heat stake deforms to at least partially fill the at least one aperture (Figure 3) (Column 4, lines 32-38 and Column 5, lines 59-67 and Column 6, lines 38-45). Dietl et al. are silent as to the substrate including at least one three-dimensional structure. It is well taken in the art of heat staking in joining a first object including at least one heat stake to a second object that the second object include both at least one aperture having an opening in a first surface and at least one three-dimensional structure surrounding the opening and including a second surface substantially orthogonal to the first surface at a boundary where the second surface meets the first surface. Enders is described above in full detail. Enders discloses heat staking a first object including at least one heat stake to a second object including both at least one aperture having an opening in a first surface and at least one three-dimensional structure surrounding the opening and including a second surface substantially orthogonal to the first surface at a boundary where the second surface meets the first surface wherein the three-dimensional structure is provided as a locking chamber for the heat stake and to deform the heat stake substantially flush with the first surface of the second object (Column 7, lines 32-34 and 41-43 and Column 8, lines 56-58). Goh et al. disclose heat staking a first object including at least one heat stake to a second object including both at least one aperture having an opening in a

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first surface and at least one three-dimensional structure surrounding the opening and including a second surface substantially orthogonal to the first surface at a boundary where the second surface meets the first surface wherein the three-dimensional structure is provided to deform the heat stake substantially flush with the first surface of the second object (Figures 3 and 4 and Paragraphs 19 and 21). Carpenter et al. disclose heat staking a first object including at least one heat stake to a second object including both at least one aperture having an opening in a first surface and at least one three-dimensional structure surrounding the opening and including a second surface substantially orthogonal to the first surface at a boundary where the second surface meets the first surface wherein the three-dimensional structure is provided as a chamber to receive the deformed heat stake (Figure 4 and Column 4, lines 62-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include with the substrate including at least one aperture having an opening in a first surface taught by Dietl et al. at least one three-dimensional structure in the vicinity of the at least one aperture as shown by Enders, Goh et al., and Carpenter et al. to provide a locking chamber for the heat stake and to deform the heat stake substantially flush with the first surface of the substrate.

Regarding the limitation “applying thermal energy from an external heat source to the at least one heat stake”, it is noted Dietl et al. deform the at least one heat stake from an ultrasonic source. However, Enders teaches the deforming energy for heat staking may be applied by any of the suitable known methods including ultrasonic, induction heating, conduction heating, etc. (Column 8, lines 35-38) the later of which at least are considered external sources of heat. Absent any unexpected results, it would have been obvious to one of ordinary skill in the art at the time the invention was made to deform the at least one heat stake as taught by Dietl et al. as

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modified by Enders, Goh et al., and Carpenter et al. using any of the known functionally equivalent methods such as ultrasonic, induction heating, conduction heating, etc. as shown by Enders as only the expected results of deforming the heat stake would be achieved.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietl et al., Enders, Goh et al., and Carpenter et al. as applied to claims 1-5 and 14 above, and further in view of Ikegami et al. (U.S. Patent 6,460,965).

Dietl et al., Enders, Goh et al., and Carpenter et al. as applied above teach all of the limitations in claims 10 and 11 except for a teaching of including an elastic member between the ink manifold and die module, it being noted Dietl et al. teach the two are joined by adhesive. Ikegami et al. disclose a method of forming an ink cartridge comprising joining an ink manifold, i.e. fluid container, (42 of Figure 4), a die module, i.e. fluid ejector, (12 of Figure 4) and a heat sink (40 of Figure 4), wherein the ink manifold and die module are joined with an elastic member (44 of Figure 4) that forms a compression seal therebetween as opposed to joining with adhesive to avoid having to handle the adhesive and to easily recycle the ink cartridge by being able to disassemble all of the components (Column 2, lines 7-40 and Column 4, lines 9-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to join the ink manifold and die module taught by Dietl et al. as modified by Enders, Goh et al., and Carpenter et al. by placing an elastic member to form a compression seal therebetween as shown by Ikegami et al. to avoid having to handle an adhesive and to easily recycle the ink cartridge by being able to disassemble all of the components.

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Allowable Subject Matter

10. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 22-28 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

12. The following is a statement of reasons for the indication of allowable subject matter:

The claims are allowed for the reasons given in paragraph 12 of the office action mailed 11/14/06. The prior art of record fails to teach or suggest the claimed method including at least one three-dimensional structure wherein the structure is a groove surrounding the at least one aperture.

Response to Arguments

13. Applicant's arguments with respect to claims 1-6, 10, 11, 14, and 22-28 have been considered but are moot in view of the new ground(s) of rejection.

In view of applicants amendment the previous rejections over Wolcott (U.S. Patent 4,859,378) are withdrawn. The new limitation requiring "applying thermal energy from an external heat source" is addressed above.

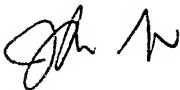
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Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John L. Goff